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Patents****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**


Application of : Examiner: James R. Bidwell  
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Robert A. Matousek, et al. : Group Art Unit 3651  
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Serial No.: 10/621,815 :  
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Filed: July 16, 2003 :  
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For: **GRAIN HARVESTER** :  
:  
**MULTI-ANGULAR INCLINED** :  
:  
**DELIVERY CONVEYOR AND** :  
:  
**DRIVE** :

**Last Office Action dated July 20, 2004**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**CERTIFICATE OF MAILING (37 CFR 1.8(a))**

*I hereby certify that this AMENDMENT (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on October 20, 2004.*

  
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**A M E N D M E N T****S I R:**

In response to the Office Action dated July 20, 2004, Applicant herein amends the above-identified patent application as follows:



### IN THE CLAIMS

Claim 1 (currently amended). A grain delivery conveyor for a grain tank of an agricultural combine, comprising:

a first gear box including a first input connectable in rotatably driven relation to a rotatable power source for rotation about a first axis, and a first output rotatable about a second axis angularly related to the first axis by rotation of the first rotatable input;

a second gear box including a second rotatable input connected in rotatably driven relation to the first output for rotation about the second axis, and a second output rotatably driveable about a third axis angularly related to the second axis by rotation of the second rotatable input; and

an elongate conveyor assembly including a rotatable element having first end connected in rotatably driven relation to the second output and a longitudinally opposite free end, the rotatable element being at least partially contained within a longitudinally extending housing, the rotatable element and the housing being jointly pivotable about the second axis for varying a position of the free end relative to the grain tank between at least a first position at a low elevation close to a floor of the grain tank and a second position at a higher elevation in the grain tank, the first gear box being supported for pivotal movement about the first axis such that the first gear box, the second gear box, and the conveyor assembly are jointly pivotable about the first axis for varying a position of the free end relative to the grain tank.

Claim 2 (cancelled).

Claim 3 (original). The conveyor of claim 1, wherein the housing includes an inlet opening disposed above the first end of the rotatable element and at least one grain shield extending upwardly relative to the inlet opening for guiding grain flow into the inlet opening.

Claim 4 (original). The conveyor of claim 1, wherein the rotatable element comprises an auger.

Claim 5 (original). The conveyor of claim 1, wherein the second axis is oriented at about a right angle to the first axis.

Claim 6 (original). The conveyor of claim 5, wherein the third axis is oriented at about a right angle to the second axis.

Claim 7 (currently amended). A grain delivery conveyor for a grain tank of an agricultural combine, comprising:

a first gear box including a first rotatable input and a first rotatable output oriented at about a right angle to the first rotatable input, the first rotatable input being connectable in rotatably driven relation to a rotatable power source for rotatably driving the first rotatable output;

a second gear box including a second rotatable input and a second rotatable output oriented at about a right angle to the second rotatable input, the second rotatable input being connected in rotatably driven relation to the first output, the second gear box being pivotable relative to the first gear box about a joint axis of rotation of the first output and the second input; and

an elongate conveyor assembly including an elongate rotatable element extending through an elongate housing and having first end connected in rotatably driven relation to the second output and a longitudinally opposite free end, the rotatable element being rotatable within the housing for conveying grain therethrough from the first end to the free end for discharge from the housing, and the rotatable element and the housing being pivotable with the second gearbox about the joint axis of rotation of the first output and the second input for varying a position of the free end of the rotatable element in the grain tank, and wherein the first gear box is supported for pivotal movement about a rotational axis of the first rotatable input such that the first gear box, the second gear box, and the conveyor assembly are jointly pivotable about the axis of rotation of the first input of the first gear box for further varying a position of the free end of the rotatable element in the grain tank.

Claim 8 (cancelled).

Claim 9 (currently amended). The conveyor of claim 8, wherein the second gear box and the conveyor assembly are pivotable about the joint axis of rotation of the first output and the second input for varying the position of the free end of the rotatable element generally vertically in the grain tank and the first gear box, second gear box, and the conveyor assembly are jointly pivotable about the axis of rotation of the first input of the first gear box for varying the position of the free end of the rotatable element generally horizontally in the grain tank.

Claim 10 (original). The conveyor of claim 9, wherein the joint axis of rotation of the first output and the second input is oriented at about a right angle to the axis of rotation of the first input.

Claim 11 (original). The conveyor of claim 7, wherein the rotatable element comprises an auger.

Claim 12 (original). A variably angularly inclinable grain delivery auger for a grain tank of an agricultural combine, comprising:

- a first gear box including a first input connectable in rotatably driven relation to a rotatable power source for rotation about a first axis, and a first output rotatable about a second axis oriented at about a right angle to the first axis by rotation of the first rotatable input;

- a second gear box including a second rotatable input connected in rotatably driven relation to the first output for rotation about the second axis, and a second output rotatably driveable about a third axis oriented at about a right angle to the second axis by rotation of the second rotatable input; and

- an auger assembly including an elongate auger having a first end connected in rotatably driven relation to the second output and a longitudinally opposite free end, the auger being at least partially contained within a longitudinally extending housing, the auger assembly being jointly pivotable about the second axis, and the gear boxes and the auger assembly being jointly pivotable about the first axis, for varying a position of the free end of the auger relative to the grain tank between at least a first position at a low elevation close to a floor of the grain tank and a second position at a higher elevation in the grain tank.

**REMARKS**

This Amendment is responsive to the Office Action dated July 20, 2004.

Claims 1-12 are pending in the application. All of the claims stand rejected under 35 U.S.C. 102(b) as being anticipated by Bobrowski U.S. Patent No. 5,094,334.

Responsive to the Office Action, Applicant herein amends independent claims 1 and 7, and cancels claims 2 and 8. Claim 9 is also amended to depend from amended independent claim 7 instead of cancelled claim 8. With these amendments, all of the claims are now believed to be parentably distinguishable over the cited reference and allowable.

Turning to amended independent claim 1, that claim is directed to a grain delivery conveyor for a grain tank of an agricultural combine, requiring a first gear box including a first input connectable in rotatably driven relation to a rotatable power source for rotation about a first axis, and a first output rotatable about a second axis angularly related to the first axis by rotation of the first rotatable input; a second gear box including a second rotatable input connected in rotatably driven relation to the first output for rotation about the second axis, and a second output rotatably driveable about a third axis angularly related to the second axis by rotation of the second rotatable input; and an elongate conveyor assembly including a rotatable element having first end connected in rotatably driven relation to the second output and a longitudinally opposite free end, the rotatable element being at least partially contained within a longitudinally extending housing, the rotatable element and the housing being jointly pivotable about the second axis for varying a position of the free end relative to the grain tank between at least a first position at a low elevation close to a floor of the grain tank and a second position at a higher elevation in the grain tank,

the first gear box being supported for pivotal movement about the first axis such that the first gear box, the second gear box, and the conveyor assembly are jointly pivotable about the first axis for varying a position of the free end relative to the grain tank.

As a result, the entire elongate conveyor assembly is pivotally movable through multiple angularly oriented inclined orientations about multiple axes to allow positioning the free end of the conveyor assembly at a variety of desired locations within the grain tank, for achieving desired grain distribution therein, and such that the free end can be elevated as the grain tank is filled with grain.

This combination of elements of amended claim 1, and the attendant advantages thereof, as set forth above and explained in the present specification, is not disclosed, taught and/or suggested by Bobrowski. In this regard, Bobrowski discloses a first gear box having a first input connected to a rotatable power source for rotation about a first axis and a first output 92 rotatable about a second axis. Bobrowski discloses a second gear box 81 having a rotatable input 93 connected to first output 92 for rotation therewith about a second axis, and a second output rotatably drivable about a third axis. However, Bobrowski does not even suggest pivotally mounting first gear box 80 for pivotal movement thereof along with the second gear box and the conveyor about the first axis, nor is there any reason for requiring pivotal movement of first gear box 80. Instead, Bobrowski teaches that first gear box 80 is bolted to a plate 82 so as to be fixed in position. See Bobrowski patent, column 4, line 62 through column 5, line 4. Input 90 of first gear box 80 is connected to a power source by a universal joint 91. However, this is only to allow orienting gear box 80 at a fixed angle in relation to the power source. This is evidenced by the bolted connection of the container housing gear box 80 to the support structure of the power source, as generally denoted at 19 and 21 in Fig. 1 of Bobrowski.

Still further, Bobrowski discloses pivotability of the conveyor driven by the two gear boxes in multiple planes. However, this is achieved by allowing pivoting of the second one of the gear boxes about the first and by the provision of a universal joint 94 for pivotability of the second gear box relative to the first gear box, not by supporting the first gear box for pivotal movement as required in amended claim 1. As a result of providing pivotability of the conveyor in this manner, Applicant respectfully asserts that Bobrowski teaches away from any need for pivotability of first gear box 80 as would be

required by amended claim 1. For the foregoing reasons, amended claim 1 is believed to be patentably distinguishable over Bobrowski and allowable.

Claims 3-6 depend from amended claim 1 and add still further limitations thereto. Accordingly, claims 3-6, in combination with amended base claim 1, are believed to be patentably distinguishable over Bobrowski and allowable.

Amended independent claim 7 is directed to a grain delivery conveyor for a grain tank of an agricultural combine, requiring a first gear box including a first rotatable input and a first rotatable output oriented at about a right angle to the first rotatable input, the first rotatable input being connectable in rotatably driven relation to a rotatable power source for rotatably driving the first rotatable output; a second gear box including a second rotatable input and a second rotatable output oriented at about a right angle to the second rotatable input, the second rotatable input being connected in rotatably driven relation to the first output, the second gear box being pivotable relative to the first gear box about a joint axis of rotation of the first output and the second input; and an elongate conveyor assembly including an elongate rotatable element extending through an elongate housing and having first end connected in rotatably driven relation to the second output and a longitudinally opposite free end, the rotatable element being rotatable within the housing for conveying grain therethrough from the first end to the free end for discharge from the housing, and the rotatable element and the housing being pivotable with the second gearbox about the joint axis of rotation of the first output and the second input for varying a position of the free end of the rotatable element in the grain tank, and

**wherein the first gear box is supported for pivotal movement about a rotational axis of the first rotatable input such that the first gear box, the second gear box, and the conveyor assembly are jointly pivotable about the axis of rotation of the first input of the first gear box for further varying a position of the free end of the rotatable element in the grain tank.**

Again, the supporting of the first gear box for pivotal movement about the rotational axis of the first rotatable input affords the capability of positioning and orienting the elongate conveyor assembly in a wide variety of positions and elevations in the grain tank, for achieving desired grain distribution therein.

For many of the reasons set forth above in traversing the rejection of claim 1, incorporated herein by reference, amended claim 7 is believed to be patentably distinguishable over the Bobrowski patent. Again, Bobrowski shows only a first gear box fixedly mounted in a container at a fixed angle relative to a power source, and a second gear box driven by an output of the first gear box and rotatable about a rotational axis of the first gear box and pivotable about a universal joint 94, to achieve desired positioning of a conveyor. By virtue of providing such different structure for allowing pivotal movement of the conveyor in multiple planes, Applicant respectfully asserts that Bobrowski teaches away from the structure set forth in amended claim 7 and in no way anticipates or suggests all of the elements of that claim. For the foregoing reasons, Applicant respectfully asserts that amended claim 7 is patentably distinguishable over Bobrowski and allowable.

Claims 9-11 depend from amended claim 7 and add further limitations thereto. For instance, claim 9 requires the second gear box and the conveyor assembly to be pivotable about the joint axis of rotation of the first output and the second input for varying the position of the free end of the rotatable element generally vertically, and the first gear box, second gear box, and the conveyor assembly being jointly pivotable about the axis of rotation of the first input of the first gear box for varying the position of the free end of the rotatable element generally horizontally. For the reasons set forth above, in regard to amended claim 7, this is not disclosed or even suggested by Bobrowski, and Applicant again respectfully asserts that Bobrowski teaches away from this arrangement, by virtue of the use of rotatability of the second gear box about the output of the first gear box, and the use of universal joint 94. Accordingly, claims 9-11, in combination with the

limitations of amended base claim 7, are believed to be patentably distinguishable over Bobrowski and allowable.

Independent claim 12 is directed to a variably angularly inclinable grain delivery auger for a grain tank of an agricultural combine, requiring a first gear box including a first input connectable in rotatably driven relation to a rotatable power source for rotation about a first axis, and a first output rotatable about a second axis oriented at about a right angle to the first axis by rotation of the first rotatable input; a second gear box including a second rotatable input connected in rotatably driven relation to the first output for rotation about the second axis, a second output rotatably driveable about a third axis oriented at about a right angle to the second axis by rotation of the second rotatable input; and an auger assembly including an elongate auger having a first end connected in rotatably driven relation to the second output and a longitudinally opposite free end, the auger being at least partially contained within a longitudinally extending housing, the auger assembly being jointly pivotable about the second axis, and

**the gear boxes and the auger assembly being jointly pivotable about the first axis, for varying a position of the free end of the auger relative to the grain tank between at least a first position at a low elevation close to a floor of the grain tank and a second position at a higher elevation in the grain tank.**

For many of the reasons set forth in traversing the rejection of claims 1 and 7 and incorporated herein by reference, Applicant respectfully asserts that a prima facie case of anticipation with regard to independent claim 12 is not present, as Bobrowski fails to show or even suggest pivotability of first gear box 80 thereof about the axis of rotation of its input, or any reason requiring such pivotability. In this latter regard, all required pivotability is provided by the connection of the second gear box 81 to gear box 80. Accordingly, claim 12 is believed to be patentably distinguishable over Bobrowski and allowable.

All of the claims pending in the application, namely, claims 1, 3-7 and 9-12 are believed to be contain limitations which patentably distinguish those claims over the cited prior art. Therefore, favorable action and allowance of all of the claims is respectfully requested.

If the Examiner has any further requirements or suggestions for placing the present claims in condition for allowance, Applicant's undersigned attorney would appreciate a telephone call at the number listed below.

Respectfully submitted,

HAVERSTOCK, GARRETT & ROBERTS LLP



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P. 017

The date stamp of the PTO on this card will serve as an acknowledgment that the following document was filed with the PTO on this date:

Amendment in the matter of:

Robert A. Matousek, et al.

SN 10/621,815

GRAIN HARVESTER MULTI-ANGULAR INCLINED DELIVERY  
CONVEYOR AND DRIVE

Encls: 10 pp. Amendment & Certificate of Mailing

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